

CHALLENGES IN ADOPTION AND APPLICATION OF PROJECT MANAGEMENT MATURITY MODELS

TWO CASES FROM ENERGY SECTOR AND AUTOMOTIVE INDUSTRY

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Extended abstract:

Introductory notions on project management maturity models

The trend of globalisation/ internationalisation has promoted competition, consolidation processes and both the number and quality of challenges industry companies are facing nowadays. Due to these developments, companies should strive for learning from past (project) business activity and improving their (project) management structures.

Project management maturity models (PMMM) provide a framework for a systematic process of organisational learning and improvement. They are designed to be used in terms of a cycle of (1) assessment, (2) analysis of the assessment and assignment of a maturity level, (3) formulation of improvement activities, (4) implementation of improvement activities and, finally, (5) re-assessment (cf. Figure 1).

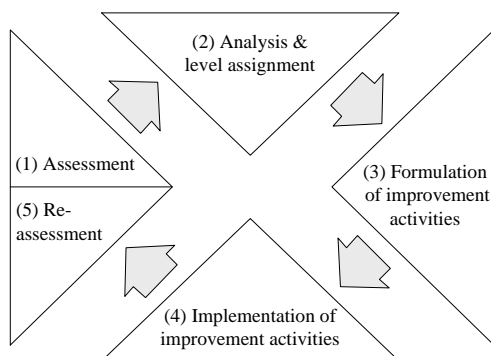


Figure 1: Cyclical application of project management maturity models [1]

The models mostly apply a step-like structure with e.g. five maturity levels. The lowest level then stands for informal project management structures. Organisations on this level mainly rely on the intuition and experience of their project managers and further project personnel. With higher levels of project management maturity comes the formalization of project management structures. This formalisation might be achieved through the implementation of a landscape of project management processes, as suggested in the systematic of the majority of the models. The processes shall then be standardised across the organisation, their effectiveness/efficiency be tested through application of quantitative metrics, and on the basis of this continuously

improved. Kerzner defines as follows: “Maturity in project management is the implementation of a standard methodology and accompanying processes such that there exists a high likelihood of repeated successes.” [2]

Proceeding from Kerzner’s definition, the benefits that accrue from a high level of project management maturity shall be outlined. Cooke-Davies subsumes the purposes for which an organisation might seek to use PMMM:

- “To understand what practices and processes have been consistently found to be useful by organizations seeking to undertake organizational project management
- To drive business improvement, for example, by understanding the key practices that need to be embedded within the organization to achieve the next level of maturity
- To assess its ability to implement its high-level strategic planning at the tactical level of managing individual projects and groups of projects
- To integrate organizational practices and processes in the domains of portfolio management, program management, and project management” [3]

The main premise underlying PMMM is that with an increasing maturity level of an organisation, the chances for successfully completing its projects also increase. [4] However, there is no empirical proof of this premise, hitherto. On the other hand, PMMM in general, their development process and their methodology have been frequently criticised. Subsequently, Grant and Pennypacker state: “One of the most important issues that future research should address is to establish a clear relationship between project management maturity and successful project delivery.” [5]

Introducing a research project and two case studies

A first working hypothesis of an ongoing research project is directly derived from the literature review in the field of PMMM and runs as follows:

WH₁: There is a positive relationship between an organisation’s level of project management maturity and the success of its projects.

As every effort of an organisation to increase its maturity level will be connected to some (opportunity) cost, the question of a – company specific – “ideal” maturity level can be drawn. ‘Ideal’ hinting at the optimal ratio of costs and benefits of a certain maturity level in this context. While WH₁ might be subject to empirical testing, the question drawn in this paragraph requires qualitative exploration. On behalf of this, a number of case studies with organisational units of industry companies were conducted, with two of them presented in this article. Some demographic data and characteristics of the two cases can be retrieved from Table 1.

Table 1: Demographic data and characteristics of the two cases presented in this article

Characteristic/ Case Study	A	B
Industry	Energy sector	Automotive
Position in supply chain	Plant engineering company	Supplier
Unit of analysis	Organisational unit of a (larger) company	Organisational unit of a (larger) company
(Project) business	Investment projects; turnkey power plants	R&D projects; components of car’s drive-section
Scope of project product	Array	Assembly
Degree of technological uncertainty in projects	Medium-Tech	Medium-Tech

No. of employees (category)	≥ 250	≥ 250
Annual turnover (category)	> 50 Mio. €	> 50 Mio. €
Interviews conducted	2	2
Documents reviewed	Overall company's... <ul style="list-style-type: none"> ▪ PM handbook ▪ PM maturity model 	Overall company's... <ul style="list-style-type: none"> ▪ PM standard ▪ PM handbook ▪ PM maturity model

In both cases the units of analysis are organisational units within larger companies. Case A constructs turnkey power plants for energy providers. Case B supplies car manufacturers with components of the car's drive-section. The interviewees belong to the following categories: Project managers, managers of a group of project managers, members of overall company's central units. However, all interviewees had experience in working in projects.

The two cases are herein analysed among the following lead questions:

- a) Which models and other frameworks do they use in terms of organisational learning and improvement?
- b) What are the main reasons for usage of maturity modelling?
- c) Which maturity level do they head at and why?
- d) What kind of problems do they face regarding the systematic of maturity models?
- e) What is the opinion of the (operative) project personnel towards maturity modelling in general, the company's own approach and the formalization that comes with higher levels of maturity?

These questions shall help to better understand what influences the company-individual ideal level of project management maturity and, finally, lead to the formulation of a second working hypothesis, which also can be subject to quantitative testing.

Outline of findings

In both cases the larger companies applied their own PMMM, which (again in both cases) contained structural and contextual elements from CMMI¹ and PMBOK Guide². The maturity models are used in order to implement a Continuous Improvement Process and to be able to measure to what extent the company-own project management structures (as documented in their project management standards/ handbooks) are applied and if they are correctly applied.

The acceptance of the approach of maturity modelling was reportedly good. The interviews reveal some evidence that the acceptance is given, due to the fact that both cases operate in rather complex project environments. The degree of internationality of the projects, the size of the project's scope, the degree of the project team's geographical dispersion, etc. were mentioned as facets of this complexity.

Yet, the interviewees also expressed some criticism, which – amongst others – covered on the following points:

- "Over-formalisation"
effort connected to working in formal structures outweighs the benefits of formalisation/ standardisation
- "Hiding" behind formal structures
staff works according to formal structures, but uses them to blind out e.g. severe project risks or to blame other project team members when risks did actually occur

¹ Capability Maturity Model Integration; process maturity model developed by the Software Engineering Institute (SEI) of Carnegie Mellon University

² A Guide to the Project Management Body of Knowledge; developed by Project Management Institute (PMI)

- Maturity models lack “human factors”
formal structures were seen as prerequisite for successful project completion in complex environment, but so were competencies of project manager and staff; interviewees criticised that PMMM do not cover on this “human side” of PM

In both cases the overall companies struggled to present a clear approach through which the ideal level of project management maturity for a certain project business environment could be determined. The qualitative data show that the project complexity might be of importance in this regard. This led to the formulation of the second working hypothesis.

WH₂: The degree of complexity of an organisation’s projects positively moderates the relationship between its project management maturity level and the success of its projects.

Both working hypotheses will be subject to empirical testing in a subsequent phase of the research project. In this phase quantitative data will be gathered from project managers and sub-project managers from industry companies through a questionnaire.

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